

ABSTRACT

A catheter includes a plurality of primary leads to deliver energy for ligating a hollow anatomical structure. Each of the primary leads includes an electrode located at the working end of the catheter. Separation is maintained between the primary leads such that each primary lead can individually receive power of selected polarity. The primary leads are constructed to expand outwardly to place the electrodes into apposition with a hollow anatomical structure. High frequency energy can be applied from the leads to create a heating effect in the surrounding tissue of the anatomical structure. The diameter of the hollow anatomical structure is reduced by the heating effect, and the electrodes of the primary leads are moved closer to one another. Where the hollow anatomical structure is a vein, energy is applied until the diameter of the vein is reduced to the point where the vein is occluded. In one embodiment, a balloon is inflated to occlude the structure before the application of energy. Where the structure is a vein, the inflated balloon obstructs blood flow and facilitates the infusion of saline, medication, or a high-impedance fluid to the vein in order to reduce the occurrence of coagulation and to improve the heating of the vein by the catheter. The catheter can include a lumen to accommodate a guide wire or to allow fluid delivery.